

# FACTS and FUN all in ONE!

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**Laugh out loud!**

**Just Joking**

**KNOCK-KNOCK.**  
Who's there?  
Annie.  
Annie who?  
Annie body home?

**Q** Why did the **police** stake out the baseball field?  
**A** They heard the players were stealing bases.

**Q** Why couldn't the teddy bear eat his dessert?  
**A** He was full.

**Q** What do you get if your parakeet flies into the blender?  
**A** Squeaked tweet.

**Check out this book!**

**FUN AND GAMES**

**SIGNS OF THE TIMES**

Seeing isn't all believing. One funny sign is Can you figure which one is f  
ANSWER ON P

**JAIL.**  
**SCHOOL.**

**Nowhere** **Somewhere**

**SKY**

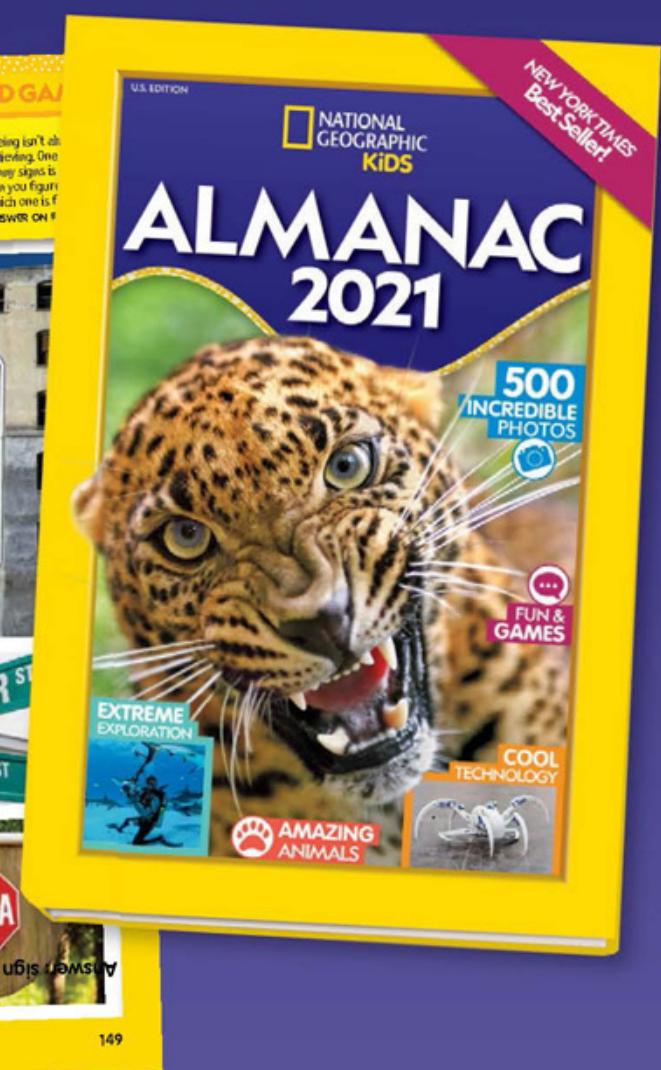
**Leprechaun crossing**

**CEMETERY LANE** **DEAD END**

**THE OTHER ST** **THIS ST**

**WHOA**

**Answer sign #2 is take**



Check out the world of the future!

**FUTURE WORLD:**

**Entertainment**

**Photosynthesis**

**Plant a BUTTERFLY GARDEN**

**How Does Your Garden GROW?**

**SCIENCE**

**CUTEST ANIMALS OF 2021**

**3 HAVING A BALL**

**2 TASTY TREAT**

**4 DECKED OUT**

**5 CUB LOVE**

Do awesome activities!

**SCIENCE AND TECHNOLOGY**

**21 CUTEST ANIMALS OF 2021**

**3 HAVING A BALL**

**2 TASTY TREAT**

**4 DECKED OUT**

**5 CUB LOVE**

NATIONAL  
GEOGRAPHIC

Kids

# Sea Pups!

The surprising  
ways sea lions act  
like dogs



\$4.99US \$6.99CAN



CRAZY DO!



BLUE  
VOLCANO



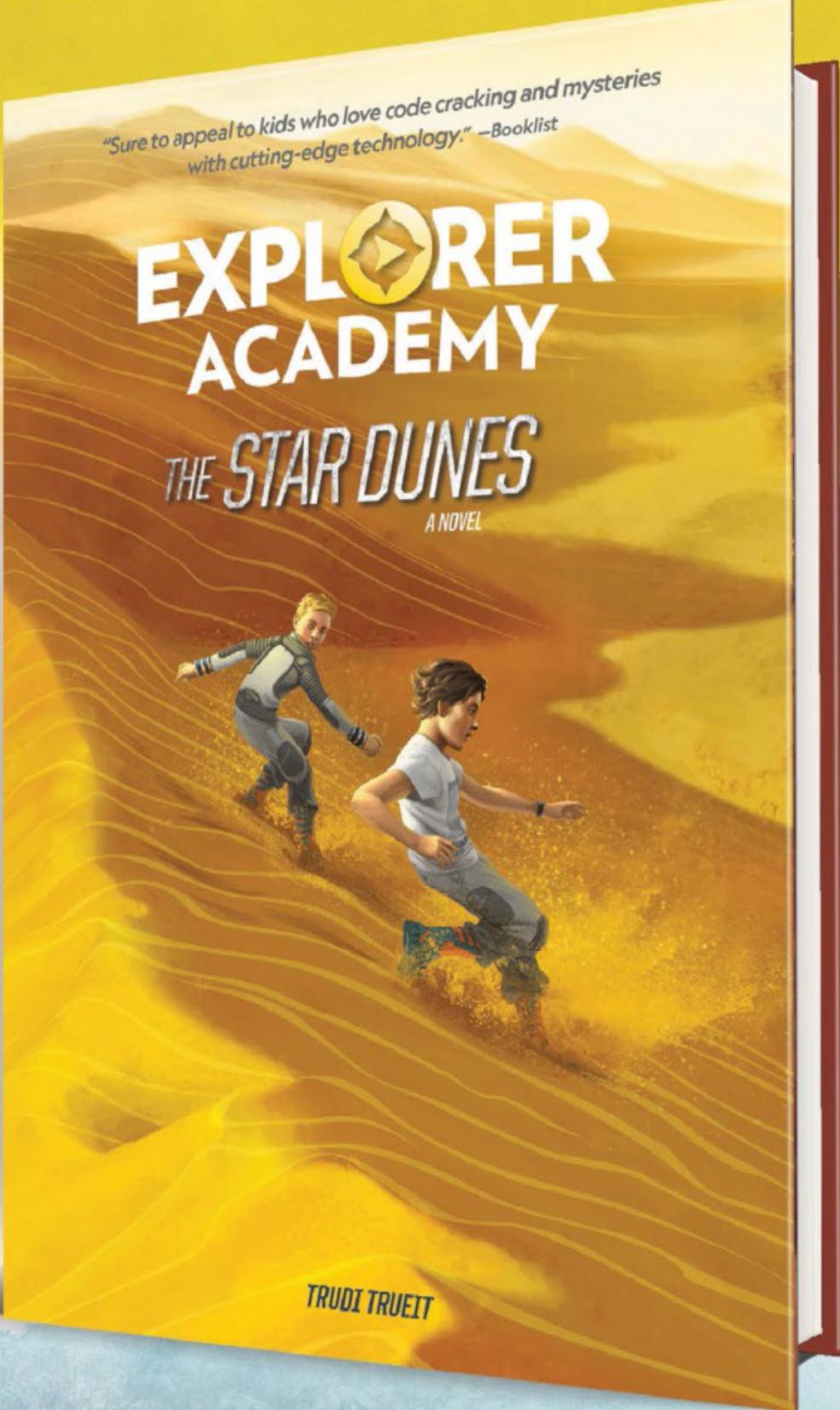
CRITTER  
CHAT

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UNDER THE Stars



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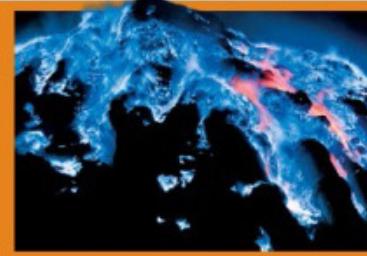
## IN THIS ISSUE

### 12 Sit! Stay! Swim!

Check out five surprising ways sea lions can seem like dogs.

### 18 Blue Volcano

An unusual dazzling light show erupts at night in Indonesia.



### 20 30 Cool Things About the World

Discover jaw-dropping facts about supersize reefs, weird frogs, and more.



### 22 Animal Showdown

Which of these animals will come out on top? You decide.



### 26 Bin There, Done That!

Follow your recyclables after they leave your house.



## DEPARTMENTS

- 4 Weird But True!
- 5 Guinness World Records
- 6 Naughty Pets
- 7 Bet You Didn't Know!
- 8 By the Numbers
- 10 Amazing Animals
- 28 Fun Stuff



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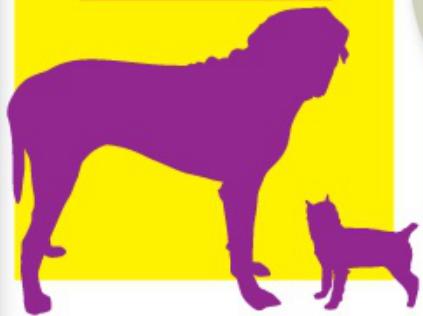
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# weird but true!

If humans came in **as many sizes as dogs**, we'd range from

**3 to 18 feet tall.**



**SOME DIAMONDS FALL TO EARTH FROM OUTER SPACE.**



A woman in California **remembered** almost every day of her life since she was 11.



## Check out these outrageous facts.

BY MARILYN TERRELL



A cat's **top speed** is **31 miles an hour**.



**A ham** once sold for **2 million dollars.**

The regal horned lizard squirts **blood** out of its eyes **to repel predators.**

Many of today's pet hamsters can be traced back to one hamster family that lived in Syria in 1930.



Before toothpaste was invented, some people cleaned their teeth with charcoal.

The **longest game of Monopoly** in a moving elevator lasted **384 hours.**

- 11  
9  
7  
5  
3  
1

- 12  
10  
8  
6  
4  
2

# GUINNESS WORLD RECORDS

## HUGE RACKET

BY BRANDON McINTYRE

You'll need a really big Ping-Pong ball to play with the world's largest table-tennis racket. The oversize paddle measures nearly 12 feet tall, or roughly the height of an adult male African elephant. That's about 20 times bigger than a standard paddle. International Table Tennis Federation rules state that rackets can be any size, so you could use it in competition. But you'd have to be able to lift it first!



AN EMPLOYEE OF PINS MECHANICAL COMPANY IN COLUMBUS, OHIO—WHERE THE RACKET IS ON DISPLAY—USES BOTH HANDS TO PICK UP THE PADDLE.



## PIG PERFORMS TRICKS

Joy isn't just a one-trick miniature pig. The swine completed 13 tricks in less than 60 seconds, earning the title of most tricks performed by a pig in one minute. Joy's showstoppers include playing a toy piano, lifting a ring off its stand, and unrolling a rug. Now that's some pig.

## SCOOOPS ON SCOOOPS

Italy is home to the Leaning Tower of Pisa, and now ... a leaning tower of ice cream? Italian Dimitri Panciera holds the record for the most ice-cream scoops balanced on one cone, keeping 125 scoops of Italian ice cream, called gelato, on top of his cone for 10 seconds. So what happened to all that gelato? Panciera ate it, of course!



# Naughty PETS

BY KELLEY MILLER

OH, GOOD.  
YOU'RE BACK.  
NOW YOU CAN  
GIVE ME  
SOMETHING  
ELSE TO  
DESTROY.



**NAME** Cuddles

**FAVORITE ACTIVITY**  
Helping maintain a  
bug-free home

**FAVORITE TOY**  
Flyswatter

**PET PEEVE** Spiderwebs  
on the ceiling



**NAME** Herbie

**FAVORITE ACTIVITY**  
Spreading couch stuffing  
around the house to cover  
the ugly carpet

**FAVORITE TOY** Sofa pillows

**PET PEEVE** Plastic chairs

AN ESSAY  
ON COOL  
CATS? I DON'T  
THINK SO,  
BUDDY!



**NAME** Baxter

**FAVORITE ACTIVITY**  
Checking Buddy's homework

**FAVORITE TOY** Paper shredders

**PET PEEVE** Violin practice



**NAME** Marshmallow

**FAVORITE ACTIVITY**  
Extreme tree climbing

**FAVORITE TOY**  
Empty squirrel nests

**PET PEEVE**  
When the crows steal  
the catnip

# Bet You Didn't Know!

# 7 bee facts to buzz about

BY JEANNETTE SWAIN

1

Bees have a special stomach for carrying nectar.

2

Some bees may sleep on flowers.

5

In summer, a single hive can house up to 80,000 honeybees.

6

The alkali bee can visit up to 6,000 flowers a day.

3

A bee beats its wings up to 12,000 times each minute.

4

Male bees can't sting.

7

Sweat bees like the taste of human perspiration.



# BY the NUMBERS

BY the  
NUMBERS



## TONGUE-TIED

**Can you lick your eyeball?** Probably not, but some of these animals could! They use their long tongues to taste, catch, and smell their way through the day. Take a look at how these tongues measure up.

human:

4

INCHES



INCHES

1

2

3

4

5

6



red-bellied  
woodpecker:

6.7

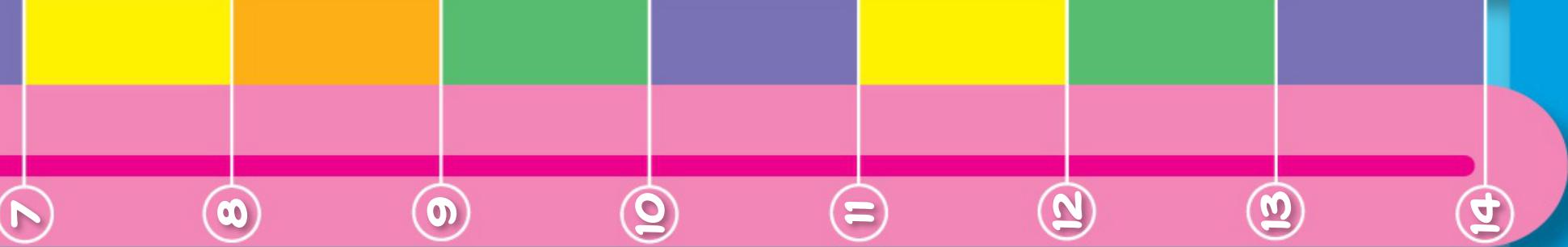
INCHES

aardvark:

12

INCHES

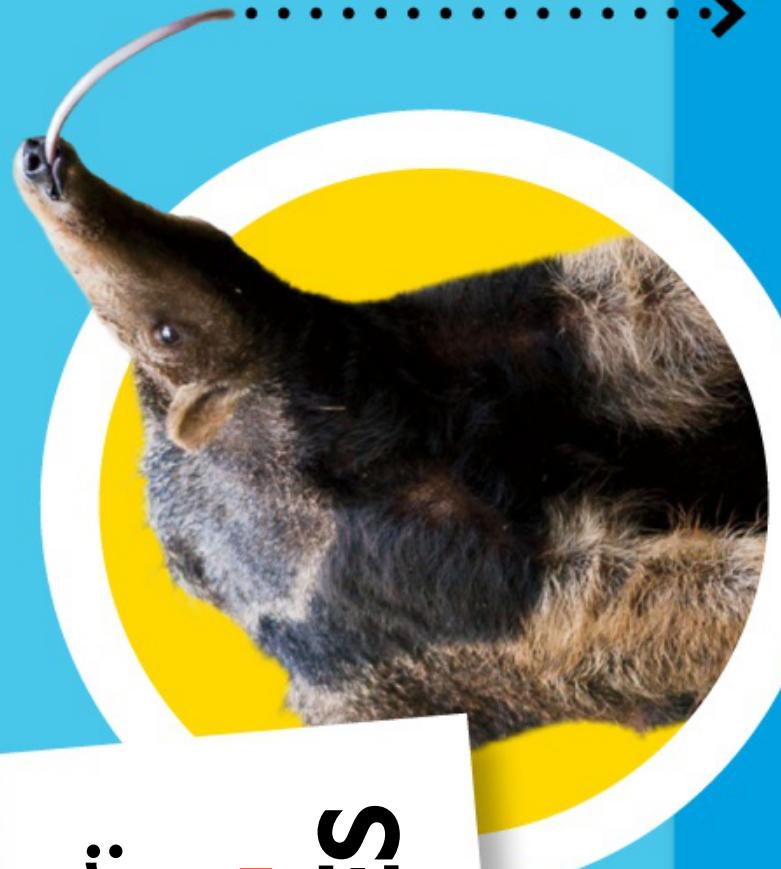




**giraffe:**  
**20**  
**INCHES**



**veiled  
chameleon:**  
**19**  
**INCHES**



**anteater:**  
**24**  
**INCHES**



CHECK  
OUT THE  
BOOK!

# AMAZING ANIMALS

CLEAN SEA =  
HAPPY BIRDS!



## Flamingo Says “Save the Earth!”

### Willemstad, Curaçao

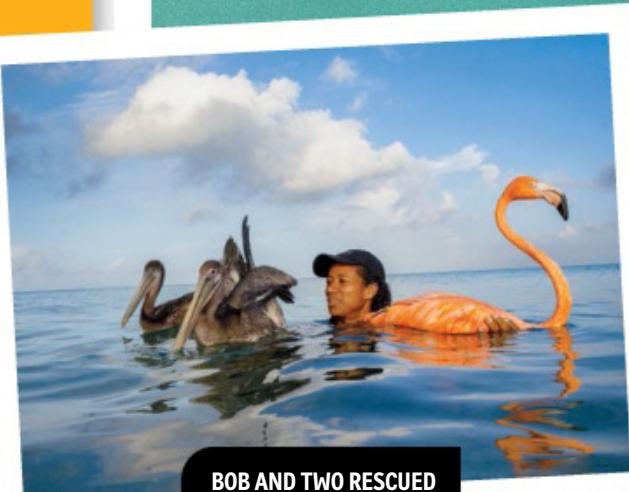
Bob the flamingo likes taking dips in his own saltwater pool and getting foot massages on the beach. This hard-working bird deserves all the pampering: He's teaching kids about conservation.

Veterinarian and wildlife sanctuary founder Odette Doest rescued Bob after he flew into a hotel window. After rehabilitating him, she realized he wouldn't be able to survive in the wild. So Doest decided to keep

Bob at her sanctuary and use the friendly bird to help educate people.

She often brings Bob to schools to teach kids about plastic pollution, which can harm wildlife when the animals become entangled in fishing gear or mistake discarded balloons as food. Bob helps people understand how a small change in their habits can have a big impact on his life, Doest says. Best bird ever!

—Christine Dell'Amore



BOB AND TWO RESCUED PELICANS SWIM WITH CARETAKER ODETTE DOEST.



BOB AND DOEST VISIT A LOCAL CLASSROOM.

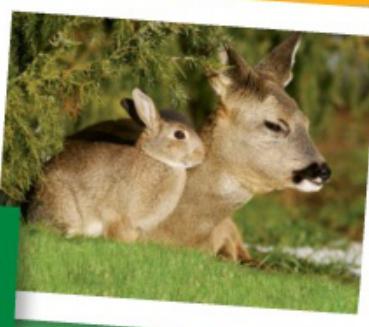
Adapted from the February 2020 National Geographic magazine article “Meet Flamingo Bob, the Poster Bird for Conservation”

LET'S  
HAVE A  
STARING  
CONTEST.

## Rabbit Builds Bed for Deer

Niedersachsen, Germany

After her mother was struck by a car, Finch the fawn was brought to live on a farm. One day as she grazed, a wild rabbit appeared, and it was by Finch's side ever since. "I watched them alert each other to hazards or predators so they could flee to safety," says Tanja Askani, who photographed the pair. But Finch and her rabbit friend seemed to be more than each other's bodyguard. The rabbit must have realized that Finch was too big to sleep underground, because the bunny built a grassy nest that was big enough for them both to curl up in. They were like a real-life Bambi and Thumper. —C.M. Tomlin



YOU'RE  
GOOD AT  
BUILDING ...  
AND EVEN  
BETTER AT  
SNUGGLING!



**RABBIT  
AND DEER**  
Niedersachsen,  
Germany

**FLAMINGO**  
Willemstad,  
Curaçao

**LEMUR**  
Mulhouse,  
France



## Blue-Eyed Lemur

Mulhouse, France

It's pretty hard to look away from Dimbi, a member of the blue-eyed black lemur species. With his large baby blues, the animal isn't just, well, eye-catching—he's also extremely rare.

Dimbi belongs to one of a few groups of primates besides humans that can have blue eyes in addition to brown. The rest of the world's roughly 600 primate species and subspecies have only brown eyes. "We're really not sure why these lemurs' irises are colored this way," says Sarah Zehr, formerly a scientist at the Duke Lemur Center. "It's very unusual." Dimbi's species is also critically endangered. Fewer than 3,000 are thought to exist in Madagascar, where wild blue-eyed black lemurs live.

Born at the Mulhouse Zoo, Dimbi resided with his parents until keepers noticed that his mom wasn't properly caring for him. Deciding to raise the animal, staff placed the baby in a toasty incubator, gave him a plush teddy bear for cuddling, and bottle-fed him milk every two hours. Now bigger, Dimbi has moved into an outdoor enclosure with another lemur.

"Dimbi's thriving," zoo veterinarian Benoît Quintard says. "He loves exploring and eating." And the animal's eyes continue to amaze his keepers. "Every time I look at them, I realize how special Dimbi is," Quintard says.

—April Capochino Myers





# Sit! Stay! Swim!

## 5

### surprising ways sea lions can seem like dogs

BY SCOTT ELDER

Hundreds of Australian sea lions have gathered together along the Australian coast. Some are sprawled out on the beach, sunning themselves. Others bark as they chase each other in the surf. Minus their flippers, these animals could fit right in at a dog park.

These marine mammals actually do remind some people of our furry pooch pals. "Sea lions are curious and playful, which is very doglike," says Deena Weisberg, a researcher who studies human and sea lion interactions in the Galápagos Islands in the Pacific Ocean. "Even when they're in the water, they behave very similarly to dogs." So should sea lions really be called sea dogs instead? Check out these five behaviors to decide.



# 1

## They bark—loudly.

Two male Galápagos sea lions stare at each other and begin to bark, taking turns shouting “ORK! ORK! ORK!” A chorus of hundreds of other sea lions back them up, like they’re taking sides in the barking battle.

If you’ve ever walked by a dog park, you know how loud a few barking dogs can be—and that one dog barking can cause many more to join in. When sea lions bark, they sound similar—except they’re *much* louder since hundreds of them hang out together. Sometimes, like dogs, sea lions bark to get another animal’s attention. But sometimes they’re barking to see which can be the loudest. Why? The winning sea lion gets access to the best beach territory, which increases his chance of mating.

“Sea lions bark to communicate, like dogs do,” animal psychologist Peter Cook says. “A bark can express emotion, like irritation or anger when another lion gets too close. Or it can be a response to something scary, like a predator.” Barks can also show excitement.

Although sea lions sound the same to us, the animals can tell the difference between each other. In fact, moms and pups use special calls to find each other in crowded nurseries.

TAKE A FUN QUIZ ABOUT DOGS!  
[natgeokids.com/august](http://natgeokids.com/august)

A CALIFORNIA SEA LION PRACTICES PORPOISING, OR DIVING QUICKLY IN AND OUT OF WATER, IN THE SEA OF CORTEZ NEAR MEXICO.



## SEA LION OR SEAL?

Sea lions and seals are pinnipeds, meaning they have flipper-like limbs. The two marine mammal species can be hard to tell apart—check out a few ways to spot the difference.



### SEA LION

EARS	Sea lions have ear flaps that stick out of their heads.
FRONT FLIPPERS	Their front flippers are furless with short claws.
BACK FLIPPERS	They can rotate their hind flippers under their bodies so they can walk on land.
NOISE LEVEL	Sea lions communicate through loud barking or bellowing.

### SEAL

SEALS	Seals have ear holes for hearing, with no flaps.
FRONT FLIPPERS	Their front flippers are fur-covered with long claws.
BACK FLIPPERS	Their hind flippers don't rotate inward, so seals use their belly muscles to scoot on land.
NOISE LEVEL	Seals usually grunt softly to communicate.



2

## They have a *lot* of energy. (But they still love naps!)

The California sea lion's body quickly pops out of the water before it dives back under. It shoots up again, then back under. The sea lion blasts in and out of the water along the coast, sort of like a superfast skipping stone. The sea lion doesn't have a destination in mind—it's just doing something called "porpoising."

When a dog needs to burn off energy, its owner takes it for a long walk or a sprint around the backyard. Sea lions "porpoise," or swim at fast speeds, zooming out of the water to dive like, well, a porpoise. "Sea lions are one of the fastest marine mammals," says scientist Adam Ratner of the Marine Mammal Center, an ocean conservation organization in Sausalito, California. "They can go as fast as 25 miles an hour." That's about five times speedier than an Olympic swimmer.

Sea lions don't just go fast. They go far. Like a dog that never seems to want to come in from its walk, sea lions often make long swims from their home, sometimes porpoising several miles away and back again in the same day. When they need a break, they'll form a sea lion raft on the water and take a group nap—just like a pair of dog friends at home on their bed.



A GROUP OF  
GALÁPAGOS SEA  
LIONS NAP IN  
THE SUN.



3

## They ❤️ humans.

A California sea lion circles a human diver. Instead of swimming away, it bumps its nose to the diver's face mask to figure out what this strange sea creature is. The diver quietly floats, careful not to touch the curious sea lion as it continues to dart and swirl around her.

When many dogs see new people, they can't resist introducing themselves. Sea lions, especially pups, can be the same way. Naturally curious, they'll waddle toward people on beaches or check out swimmers to get a better look. Underwater, sea lions will inspect scuba divers and their gear by nudging them.

But just because the sea mammals are curious doesn't mean they're your new best friends. "Sea lions are rarely aggressive toward humans," Ratner says. "But they're still wild animals that should be left alone." So if a sea lion approaches you, treat it like, well, a dog you don't know. Stay calm, don't try to touch it, and keep as much distance as possible until it gets bored and swims away.



A CALIFORNIA SEA LION CHECKS OUT A DIVER OFF THE COAST OF MEXICO.

Sea lions use their whiskers, called vibrissae (pronounced VEYE-bree-see), to detect the movements of nearby fish.



4

## They hang out in packs—er, rafts.

Hundreds of Steller sea lions are squeezed together on a rocky section of a beach near Sitka, a city in southeast Alaska. More sea lions couldn't possibly squish themselves into the group, called a raft. But then a pup waddles up, climbs on top of a few sea lions on the edge, and scuttles across several more until it reaches the middle. It wedges itself in between two larger sea lions before falling asleep.

Sea lions, like most dog breeds, are social animals that prefer to spend time in pairs or groups. The socializing starts soon after the pups are born. Mother

sea lions need to eat in order to nurse their young with milk. "So the moms spend hours each day hunting, leaving hundreds of young pups on the beach to play with each other," Ratner says. "It's sort of like an unsupervised recess."

And like dogs that share a home with cats, sea lions can interact with other animals in their ocean home as well. They've been spotted swimming with whales and sharing beaches with seals. "I've seen sea lions climb on a 5,000-pound elephant seal," Ratner says. "The seal was totally used to being treated like a jungle gym."



A PAIR OF GALÁPAGOS SEA LIONS NAP ALONGSIDE MARINE IGUANAS IN THE GALÁPAGOS ISLANDS.

SEE MORE SNOOZING ANIMALS.  
[natgeokids.com/august](http://natgeokids.com/august)

5

## They play "fetch" (sort of).

A California sea lion picks up a sea star with its mouth and swims to a spot about 12 feet away. The sea lion drops the star onto a pile of other sea stars, sea cucumbers, and rocks. It swims away, snatches up another rock, and adds it to the pile. The sea lion nudges the objects on the seafloor with its nose, playfully knocking over the objects in the pile.

Dogs chase tennis balls and chew on squeaky bones. Sea lions love to play too, but their toys are colorful playthings found in the ocean. "Using their nose and mouth to investigate objects, sea lions are constantly exploring their surroundings," Ratner says. That could be anything from picking up sea stars to trying to find an octopus hiding in the rocks. "Whether they're swimming around with some of their sea lion friends or chasing down fish for lunch, sea lions are always staying active," Ratner says. Just like dogs!

Sea lions eat about 30 pounds of fish, squid, and other food every day.



A CALIFORNIA SEA LION PLAYS WITH A SEA STAR IN THE SEA OF CORTEZ NEAR MEXICO.

# SEA LION SQUAD

Sea lions can be found in every ocean in the world except for the North Atlantic Ocean. (Scientists have no idea why—the temperature is similar to other oceans they live in, and food is plentiful.) Meet the planet's six species of sea lions.



## New Zealand sea lion

Also known as Hooker's sea lion, this species lives along the coasts of southern New Zealand. Only about 3,000 are left, making them the rarest sea lions in the world.



**Steller sea lion** These sea lions live near coasts in the North Pacific Ocean. They're the largest sea lion, with adult males weighing up to 2,500 pounds, more than twice the weight of a male polar bear.



**Galápagos sea lion** Found in only two places—the Galápagos Islands and Isla de la Plata, both off the coast of Ecuador—these sea lions can hold their breath underwater for up to 40 minutes.



**California sea lion** Found along the western coast of North America, these sea lions often gather in groups on docks to rest and can zip underwater at speeds of up to 25 miles an hour.



**Australian sea lion** You'll find these sea lions along the southern and western coasts of Australia. Great climbers, they're often spotted on cliffs, sometimes climbing as high as a hundred feet.



**South American sea lion** Swimming along both the eastern and western coasts of South America, this species is best known for the large lionlike manes that the adult males grow.

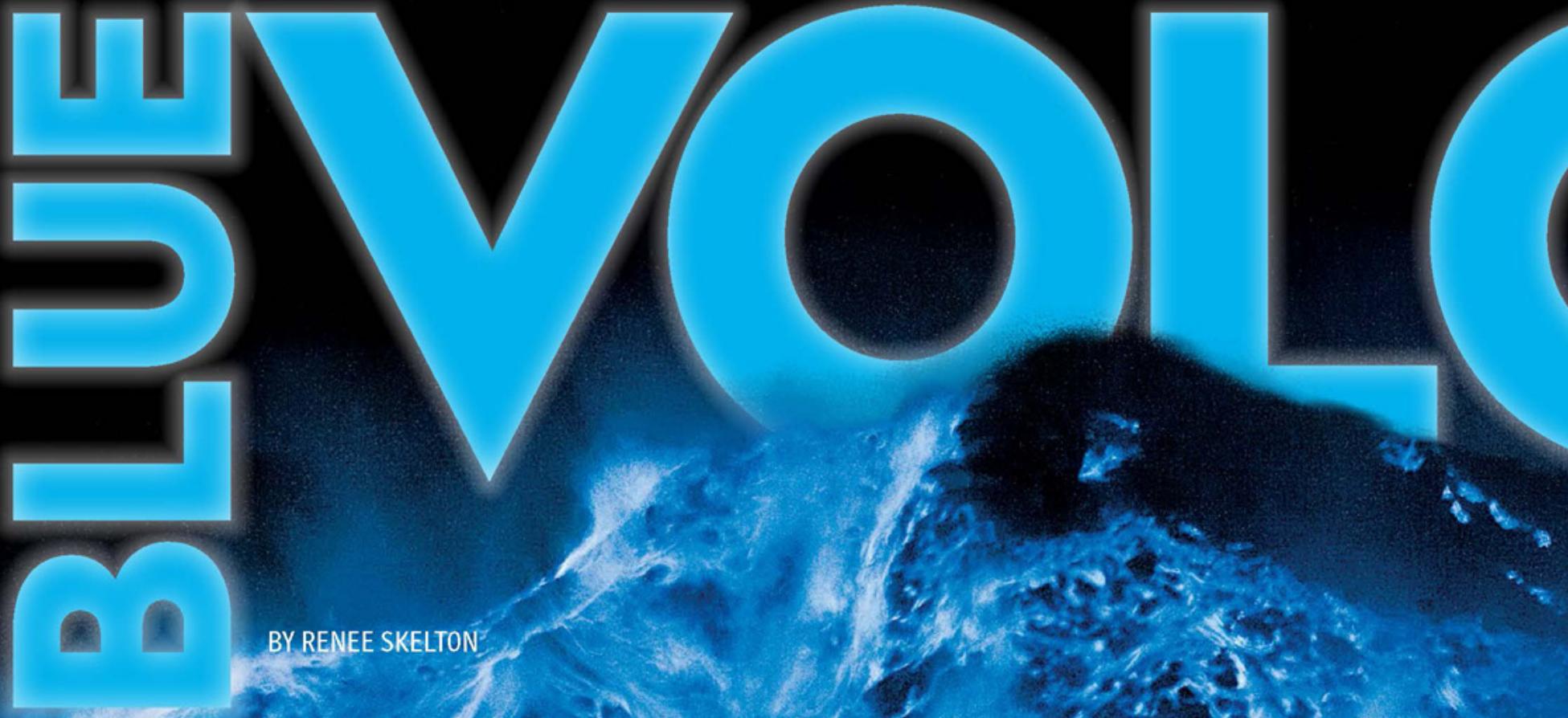


Once found in the waters around Japan and on the eastern Russian and Korean coasts, **Japanese sea lions** (seen in the drawing above) are thought to have gone extinct in the 1970s.



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# Volcano



BY RENEE SKELTON

## A strange eruption creates a dazzling light show.

The night is pitch-black. But the dark slopes of a hill inside the crater of Kawah Ijen volcano in Indonesia, a country in Asia, are lit up like a holiday light show. Tourists flock to the volcano to see what look like glowing blue rivers of lava. But they aren't rivers of lava. They're rivers of glowing sulfur.

### Burning Blue

Glowing red lava flowing from an erupting volcano isn't unusual. Glowing sulfur is. Hot, sulfur-rich gases escape constantly from cracks called fumaroles in Kawah Ijen's crater. The gases cool when they hit the air. Some condense into liquid sulfur, which flows down the hillside. When the sulfur and leftover gases ignite, they burn bright blue and light up the night sky.



Scientists were told that sulfur miners on the volcano sometimes use torches to ignite the sulfur. The blue flames make Kawah Ijen popular with tourists, who watch from a safe distance. Scientists have also confirmed that some of the sulfur and gases also burn naturally, igniting as hot gases combine with oxygen in the air.

### Volcano Miners

Sulfur is a common volcanic gas, and its chemical properties are used to manufacture many things, such as rubber. But it's so plentiful in Kawah Ijen's crater that miners make a dangerous daily trek into the crater to collect sulfur from a fumarole near an acid lake.

"The local people pipe the gases from the fumarole through ceramic pipes," says John Pallister, a retired geologist with the Cascades Volcano Observatory in Washington State. He has walked into the crater himself, wearing a gas mask for protection against the clouds of acid that rise from the lake. "They spray the pipes with water from a spring," he says. This cools the gases and causes them to condense into molten sulfur. The sulfur then cools and hardens into rock.

Using this method, miners get more

usable rock faster than if they just collected scattered pieces. They smash up the rock with metal bars, stuff the pieces into baskets, and carry them out of the crater on their backs. The loads are heavy—between 100 and 200 pounds apiece.

### Reading the Danger Zone

Miners face another danger: a huge eruption. Kawah Ijen's last big eruption was almost 200 years ago, but the volcano is still active. A big eruption could endanger hundreds of miners and tourists.

Indonesian scientists want to find a way to predict a big eruption in time to keep everyone safe. But the deep acid lake makes it difficult to pick up the usual signals that warn of a coming volcanic eruption.

For example, certain gases are usually more abundant right before an eruption. But in *this* lake, those gases dissolve in the deep water before they can register on the geologists' monitoring equipment.

As scientists search for ways to predict this unusual volcano's behavior, Kawah Ijen's blue fires continue to attract audiences who appreciate the volcano's amazing glow.

# WHAT IS AVAXHOME?

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# CANVAS



## FUN FACTS ABOUT INDONESIA

Indonesia is a group of more than 17,500 islands off the coast of Southeast Asia. It's the largest country in the region.

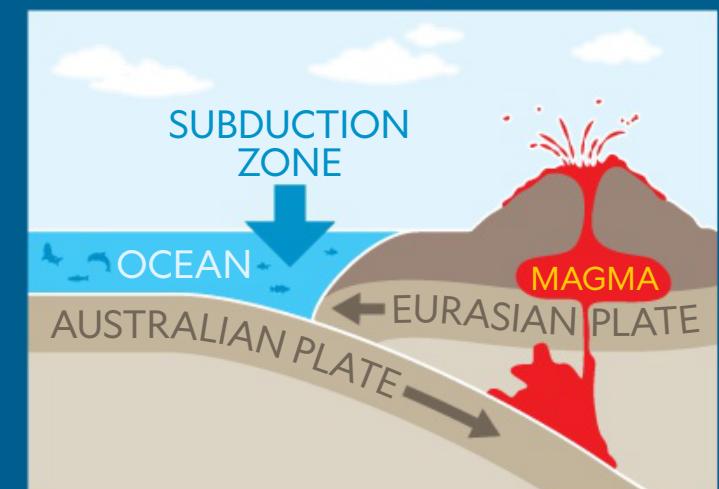
When the volcano on the tiny Indonesian island of Krakatau erupted in August 1883, it could be heard thousands of miles away.

The *Rafflesia arnoldii*, the largest single flower in the world, grows in Indonesia. The flower smells like rotting meat, can grow three feet across, and weighs up to 24 pounds.

Nearly 11 million people live in Jakarta, Indonesia's city with the largest population. That's almost 2.5 million more people than are living in New York City.



More than 70 active volcanoes are in Indonesia.



## How Kawah Ijen Erupts

Earth's outer shell is broken into a jigsaw puzzle of several tectonic plates, or gigantic slabs of rock, that move constantly. In Indonesia, the oceanic **Australian plate** slips under the **Eurasian plate** at a **subduction zone**. As the Australian plate slides deep down, heat generated in Earth's interior makes the plate superhot, and parts of it melt. This melted rock, called **magma**, rises toward Earth's surface. Pressure on the magma lessens as it rises, allowing gases inside to expand, which can lead to explosive volcanic eruptions.



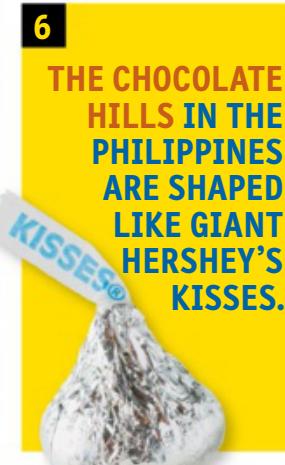
China's mountainous bamboo forests can rise sharply—but giant pandas can easily climb as high as **13,000 FEET** up the slopes.

2 BEFORE THE 1400s IN EUROPE, PORTUGAL'S SOUTHERN COAST WAS THOUGHT TO BE THE EDGE OF THE KNOWN WORLD.



3 Tucked inside the remains of Oregon's Mount Mazama volcano are 4 small volcanoes.

4 HURRICANES NORTH OF THE EQUATOR SPIN IN THE OPPOSITE DIRECTION AS ONES SOUTH OF THE EQUATOR.



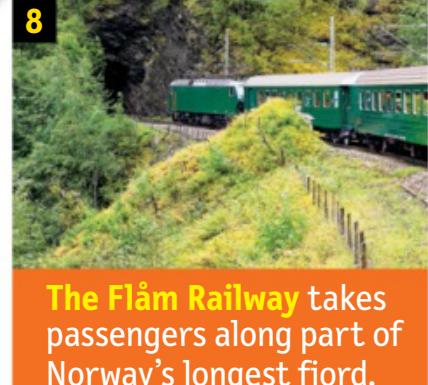
# 30 COOL THINGS ABOUT

A TOWN IN MARYLAND IS NAMED **BORING**.

7

ABOUT 70 PERCENT OF EARTH'S FRESHWATER IS FROZEN WITHIN ICE SHEETS IN ANTARCTICA.

10



The Flåm Railway takes passengers along part of Norway's longest fjord.

8

More people live in TAMPA, FLORIDA, than in all of ICELAND.



13

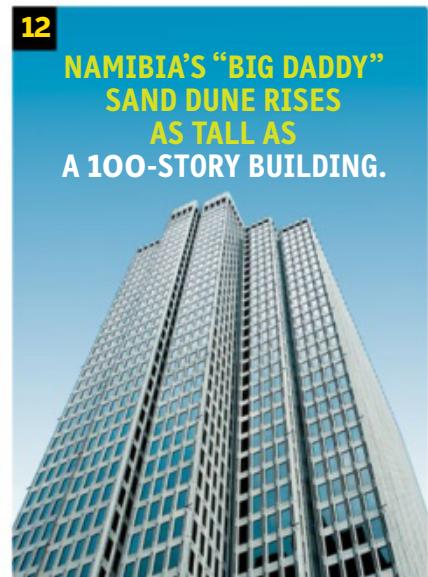
The United Arab Emirates has 2 artificial islands SHAPED LIKE PALM TREES.

14

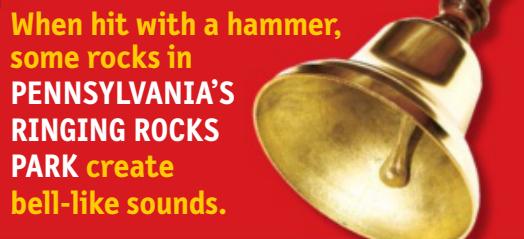
When hit with a hammer, some rocks in PENNSYLVANIA'S RINGING ROCKS PARK create bell-like sounds.

15

CANADA'S THOR PEAK IS THOUGHT TO HAVE THE WORLD'S LONGEST UNINTERRUPTED CLIFF FACE.



11



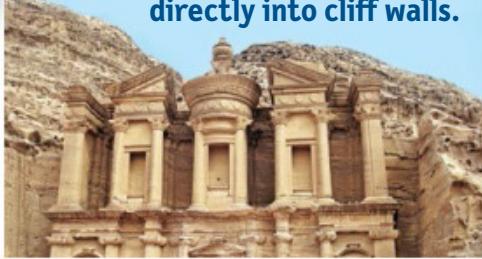
16

EARTH ROTATES ON ITS AXIS 1.5 MILLISECONDS SLOWER EVERY CENTURY.



17

In Jordan's ancient city of Petra, buildings were carved directly into cliff walls.



19

The scorching deserts of North Africa don't hurt the sand cat—the animal's paw pads are covered in fur to protect its feet from heat.



20



18

WHEN FORESTS FLOOD ALONG SOUTH AMERICA'S AMAZON RIVER, RIVER DOLPHINS SOMETIMES SWIM AROUND TREES.



21

Mawsynram, India, receives nearly 40 FEET OF RAIN A YEAR.

22

SWEPT TO SEA BY A 2011 TSUNAMI, A MOTORCYCLE DRIFTED FROM JAPAN TO CANADA.

23

THE DEAD SEA'S WATER LEVEL DROPS MORE THAN 3 FEET EACH YEAR.



# THE WORLD

BY ZACHARY PETIT

24

England's Bishop Rock is considered one of the smallest islands with a light-house on it.



25



Nearly 48 MILLION soccer fields would fit on the surface of Australia's GREAT BARRIER REEF.

26



A SUPERSTRONG HURRICANE in 2012 made the Mississippi River flow backward.

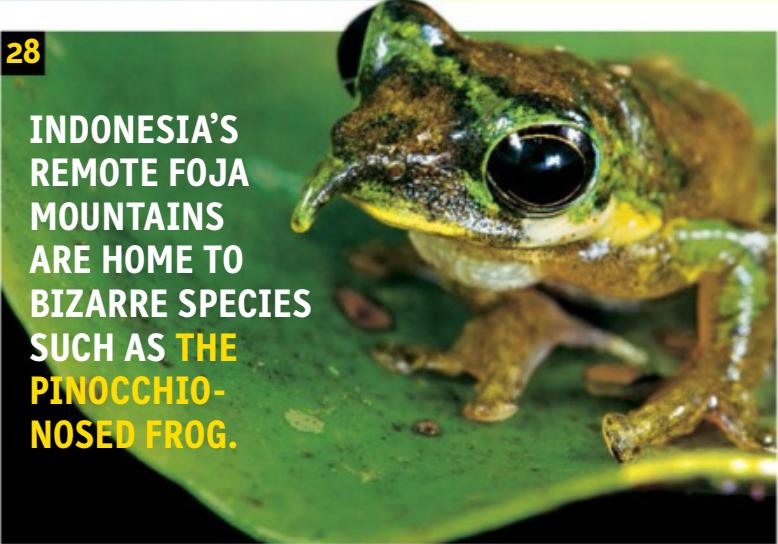
27



CARTOGRAPHERS used to ride HOT-AIR BALLOONS to view and map land.

28

INDONESIA'S REMOTE FOJA MOUNTAINS ARE HOME TO BIZARRE SPECIES SUCH AS THE PINOCCHIO-NOSED FROG.



29

One cave in Malaysia is big enough to hold 8 jumbo jets.

30

THE SURFACE OF THE PACIFIC OCEAN IS LARGER THAN ALL OF EARTH'S CONTINENTS COMBINED.

# ANIMAL SHOWDOWN

WHICH OF THESE ANIMALS WILL  
COME OUT ON TOP? YOU DECIDE.

BY STEPHANIE WARREN DRIMMER



## MACARONI PENGUIN

**COOL CREST, BRO:** When you think of a penguin, you likely picture a plain black-and-white bird. But the macaroni penguin sports a crazier look. The orange-

yellow crest of feathers on its head begins between its eyes and extends backward in a V shape. Its bright hairdo really stands out in snowy Antarctica, where these penguins gather in dense colonies that can number more than 100,000 birds. That's a lot of good hair.

**SHOWING OFF:** Macaroni penguins use their crests to attract partners. During mating season, the male and female penguins will bow forward, then stretch their beaks straight up, calling loudly and shaking their heads back and forth to call attention to their over-the-top hairdos.

**WHAT'S IN A NAME?** When British explorers first spotted these unusual penguins in the 18th century, they named the birds after a fashion trend back home. "Macaronis" were men who wore showy clothes and fancy, super-tall wigs. We can see the resemblance!

## BEST HAIRDO

Humans can rock braids, mohawks, and more. (After all, we're one of the few animals that sport a crop of hair on our heads.) But our hairstyles are nothing special compared to those of the **MACARONI PENGUIN** and the **HAIRY FROGFISH**. So which creature wins the fight for **BEST HAIRDO?**

VS.  
MACARONI PENGUIN  
vs.  
HAIRY FROGFISH

## HAIRY FROGFISH

### COOL CAMOUFLAGE:

The hairy frogfish's body is covered in thousands of spines that look like strands of hair. Its furry appearance helps it hide effectively on the ocean floor, blending in with coral reefs in the warm, tropical waters where it lives. Frogfish can even change color to better camouflage themselves, turning their spines shades of yellow, pink, red, brown, and cream.

**IMPRESSIVE HEADGEAR:** Frogfish have lures jutting from their heads that they wave in front of their mouths like built-in fishing rods to attract prey. Some species' lures resemble shrimp, and others pass for tiny squid. These lures are extra accessories that make them look fierce.

**FAST FOOD:** When it sees a potential snack, the hairy frogfish waves its lure and lunges from its hiding place. Then, *gulp!* Goodbye, unsuspecting crustacean or small fish. And it's the frogfish's hairstyle that keeps prey from noticing it, making its extreme eating habits possible.



Both animals have impressive "hair." After all, the macaroni penguin has such a distinctive do that it helped inspire the animal's name. But the hairy frogfish can not only change the color of its hairlike spines, it actually uses its shaggy covering to catch prey. That gives the frogfish the superior style. **WINNER: HAIRY FROGFISH**



# MOST VENOMOUS



## DEATHSTALKER SCORPION

**THE NAME SAYS IT ALL:** The deathstalker scorpion is a stealthy hunter, remaining motionless as it hides under a rock waiting for a cricket or another clueless insect to creep by. Then the scorpion springs from its hiding place, grabs the critter in its pincers, and delivers its deadly sting.

**PUNY PINCERS, BIG STING:** One way to judge the power of a scorpion's venom is by looking at its pincers. Scorpion species with big pincers can subdue prey just by grabbing it, so they don't need strong venom. Scorpions with small pincers, like the deathstalker, need powerful venom to make up for a weaker grip.

**INSIDE THE VENOM:** The paralyzing power comes from a molecule that blocks certain chemicals in the venom from entering the victim's muscle cells. Normally those chemicals tell muscles to relax. But because the chemicals are blocked, the muscles seize up.



## BOX JELLYFISH

**ON THE HUNT:** Most jellies spend their lives floating along ocean currents and snacking on whatever drifts by. Not the box jellyfish. It actively hunts its prey, jetting through the water at speeds of around three feet every five seconds. It can also use its 10-foot-long tentacles as fishing poles. That's pretty smart behavior for an animal without a brain.

**SELF-DEFENSE:** The box jelly's tentacles are covered in stinging cells containing some of the strongest venom on the planet. This toxin plays an important role in the jelly's safety. The jelly's swift-acting venom prevents its prey from struggling and damaging the jelly's delicate tentacles.

**STING STATS:** A box jelly can have up to 15 tentacles growing from each corner of its cube-shaped body. Each tentacle has about 5,000 barbed cells containing venom. In humans, the venom can paralyze muscles, stop the heart, and sometimes cause death, minutes after the sting.



Sure, the deathstalker scorpion can cause humans intense pain. But unlike a deathstalker scorpion's venom, which only affects human muscles, box jellyfish venom attacks the nervous system and even skin cells. That makes the box jelly the most venomous animal in the sea, and possibly on the planet. **WINNER: BOX JELLYFISH**

CHECK OUT THE BOOK!



STEPHEN DALTON / SCIENCE SOURCE (SCORPION); MELANIE STETSON FREEMAN / THE CHRISTIAN SCIENCE MONITOR VIA GETTY IMAGES (JELLYFISH); CAROL BUCHANAN / DREAMSTIME (CLOWNFISH AND ANEMONE); ANUP SHAH / NPL / MINDEN PICTURES (MONGOOSE AND WARTHOG)

# CLOSEST BFFS

They may not share popcorn at the movies or borrow each other's clothes, but these animal pairs have some of the best partnerships in nature. Find out which duo will stay BFFs: CLOWNFISH AND ANEMONE or MONGOOSE AND WARTHOG.

## CLOWNFISH AND ANEMONE

**UNDERWATER ALLIES:** Clownfish have a close relationship with certain species of anemones. The little fish live among the stinging sea creature's tentacles, where the clownfish are protected from predators. In return for the shelter, they provide the anemone with food scraps from their meals and chase away intruders.

**SLIME SHIELD:** It's not easy living inside a home that stings you. Some species of clownfish gently touch their host anemone again and again when they first move in. Scientists think this process adds chemicals to the natural layer of mucus the clownfish wears, and that those chemicals tell the anemone not to sting.

**SHARE THE AIR:** Clownfish perform a complex dance inside their anemone hosts, turning and weaving through their many tentacles. Scientists think this dance isn't just for fun: It helps move fresh, oxygen-rich water over the anemone so it can breathe.



## MONGOOSE AND WARTHOG

**PRIMPING PIG:** When the warthog lies down, it's a signal to the mongoose that the bigger animal wants a spa treatment. The furry mongoose then climbs on the warthog and grooms it, even cleaning inside its ears.

**MY TURN:** In exchange for their cleaning service, mongooses get a meal. Dead skin, along with ticks living on the warthogs, provides a tasty snack. As a thank-you, warthogs keep their defensive tusks to themselves.

**ODD COUPLE:** Warthogs don't look very friendly. These wild members of the pig family sport four sharp tusks and a large head covered with wartlike bumps. They can weigh up to 250 pounds and run 30 miles an hour—as fast as a charging bull. Yet they're known to spend time with the smaller mongoose, which weighs only about 11 pounds, in the grasslands of Africa where the creatures live.



Warthogs and mongooses definitely take care of each other, but they aren't as tight as a clownfish and anemone twosome. Clownfish wouldn't be able to survive without their anemone partners' protection. That makes these marine animals true BFFs for life. **WINNER: CLOWNFISH AND ANEMONE**

FOR MORE CRITTER MATCHUPS, WATCH ANIMAL SHOWDOWN.  
[natgeokids.com/august](http://natgeokids.com/august)

# Bin There, Done That!

Check out what happens to your recyclables after they leave your house.

BY ALLYSON SHAW  
ART BY CLAYTON HANMER

You always put your old homework paper and plastic bottles into the recycling bin. Go, you! But that's just the first step for the 67 million tons of waste Americans recycle each year. Take a tour of the first stop for your recyclables: the facility where the materials are sorted.

## 1 TRUCK STOP

A truck cruises to your curbside and workers snag the items from your recycle bin, eventually bringing them to a place called a materials recovery facility, or MRF (pronounced MURF). This is where items will be sorted by material (like paper and aluminum) so they can be sent to other facilities and recycled into new products.

## 2 PUSHOVER

The truck dumps its haul in an area of the MRF called the tipping floor. A tractor pushes the heaps of mixed recyclables onto a slow-moving conveyor belt. As the items move forward, they bump against a spinning cylinder that spreads the waste onto another conveyor belt in a layer that's about six to eight inches thick—just the right height for the rest of the system to work.

## 3 BAD BAGS

Sometimes we put the wrong stuff into our recycling bins. So while the materials are whooshing by on the conveyor belt, fast-fingered workers pull out items that might damage the MRF's machines, like plastic bags and plastic wrap that can tangle in the equipment. Workers also look for electronics, big pieces of metal, and clothing: They're usually sent to a landfill from here.

## 4 SURFIN' PAPER

Next the recyclables meet a series of jagged wheels made out of rubber. Light, flat items like paper and cardboard easily ride the twirling discs like a surfer on a wave, while bulky items fall onto another conveyor belt. The sorted and baled paper then goes to another plant. There it's cleaned, crushed into pulp, and then turned into recycled paper.

## 5 SHATTERING GLASS

The remaining objects—mostly glass, plastic, and small metal—arrive at a set of rotating steel discs that break glass into tiny pieces. Other items bounce on top. The shattered stuff falls into a machine where a stream of air removes bits of paper. The fragments then go to a special glass recycling facility.

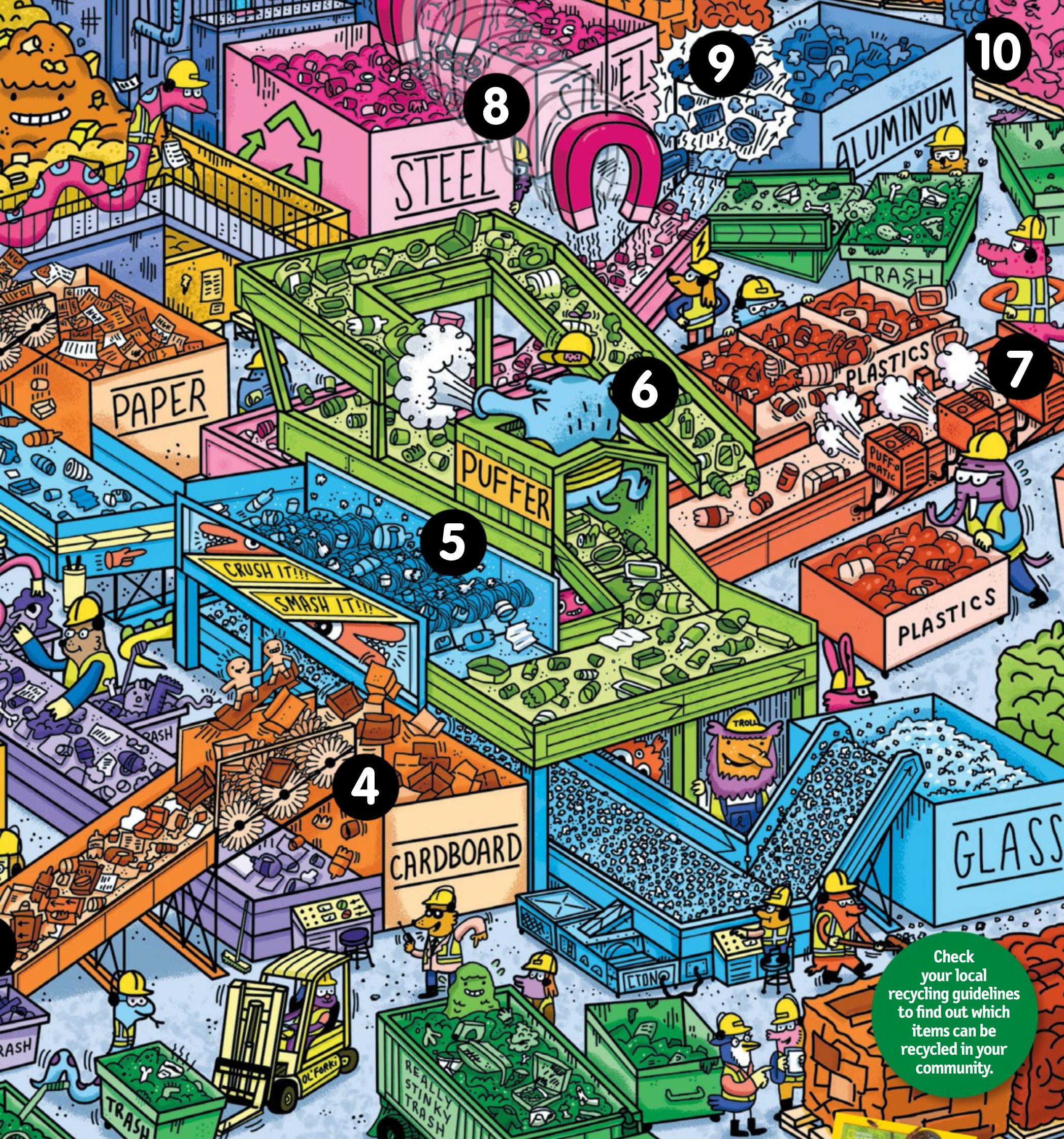


## 6 POOF, PLASTICS

So now what happens to what's left over? A stream of air blows lighter items like plastic to a new conveyor belt, while heavier items like metal keep going.

## 7 PLASTIC SORTING

Different types of plastic need to be separated before they can be recycled. As plastic travels along the conveyor belt, a machine with an infrared camera beams light at the items to identify the plastic. (It's all about how the light reflects off the item.) Once the machine recognizes a certain type, a burst of air pushes the item into the correct bucket. Then they go to another facility to become recycled products.



Check  
your local  
recycling guidelines  
to find out which  
items can be  
recycled in your  
community.

### 8 MAGNETIC MAGIC

As the metal moves along, a powerful magnet attracts steel and tin, then drops them into a bucket. The items are baled into giant cubes and sent to plants to melt them before recycling into new products.

### 9 CAN-CAN CURRENT

Aluminum isn't usually magnetic, so cans and foil pass by the first magnet. Instead, a machine creates a strong magnetic field that repels the aluminum, blasting it off the conveyor belt and into another bucket. The aluminum can be melted down and recycled into cans and foil at another facility.

### 10 LAST STOP

The separated paper, glass, steel, aluminum, and plastic are baled and eventually sold to other facilities that will turn them into recycled products. Other items are sent to a landfill or are burned.



CHECK  
OUT  
THIS  
BOOK!

# FUN

# STUFF

GAMES, LAUGHS, AND LOTS TO DO!

BY AUBRE ANDRUS, TRACEY WEST, AND GARY WEITZMAN

## TRAIN YOUR DOG

## Come When Called

For this command, use your pup's name followed by the word "come." For example, "Fido, come!" Practice on a leash first so your dog has no other choice but to come to you.

### YOU NEED:

- A leash
- Dog treats



### INSTRUCTIONS

- 1 Start with your dog a short distance away from you on a leash.
- 2 Begin jogging and give a gentle tug on the leash so your dog follows you as you say, "Fido, come!" Only give the command once.
- 3 When your dog follows, stop and reward it with a treat. Repeat this process five times.
- 4 Now hold a treat in your hand while your dog is a short distance away from you on the leash.
- 5 Say, "Fido, come!" Reward your pup with the treat when it comes to you. Repeat this process five times.
- 6 Once you've mastered "come" on the leash, you can practice this command off the leash in your home or backyard. It's OK if your pup needs lots of practice to learn this command—every pet is different!



GET MORE  
DOG TRAINING  
TIPS IN THIS  
BOOK!

**TRAINING TIP:** When you first begin teaching this skill, call your dog only when you know it's likely to come (like when you're running and your pup will want to join you, or when you're holding a treat and your dog can see it). Be sure to give a reward every time your pup completes the command.

## TRAIN YOUR CAT

# Use a Scratching Post

Cats can have claws of destruction! But your kitty isn't bad—scratching helps cats stretch, keep their claws sharp, and send messages to other cats. In the wild, your cat would scratch its claws on a tree. In your home, give your kitty the next best thing.

### YOU NEED:

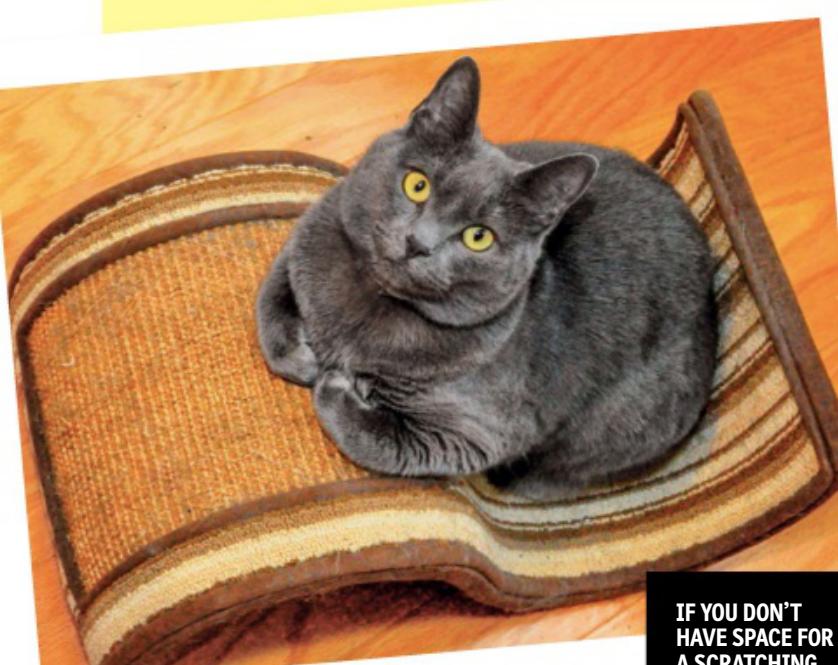
- A scratching pad or post. You can choose one made of cardboard or pieces of wood, or one that's covered in carpeting or roughly textured rope called sisal.
- Cat treats like small pieces of cooked tuna fish, turkey, or chicken, or small treats you can buy in the supermarket. (Check that they don't have a lot of artificial ingredients.)

### INSTRUCTIONS

**1** Pick a spot for the scratching post. Many cats like to scratch and stretch when they wake up, so set it up next to your cat's sleeping area if possible.

**2** Carry your cat to the post. If kitty scratches the post, reward it with a treat. Repeat this at least five times and continue until the cat starts to use the post on its own.

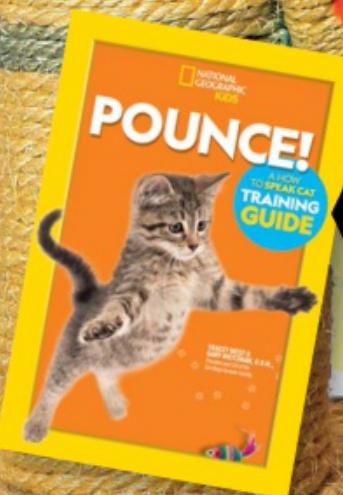
**3** If your cat doesn't scratch the post, try putting some toys or favorite treats near the base. You can also try putting some catnip on or around the post. Repeat this each day until your cat uses the post on its own.



IF YOU DON'T HAVE SPACE FOR A SCRATCHING POST, LOOK FOR A SCRATCHING PAD LIKE THIS ONE.

### TRAINING TIP:

Your cat might still scratch something off-limits, even after you've introduced the scratching post. If this happens, interrupt your cat by firmly saying "No." Then pick up kitty and move it to the scratching post. Don't yell, and never hit your pet.



GET MORE  
CAT TRAINING  
TIPS IN THIS  
BOOK!



# FUNNY FILL-IN

## STORM AT SEA

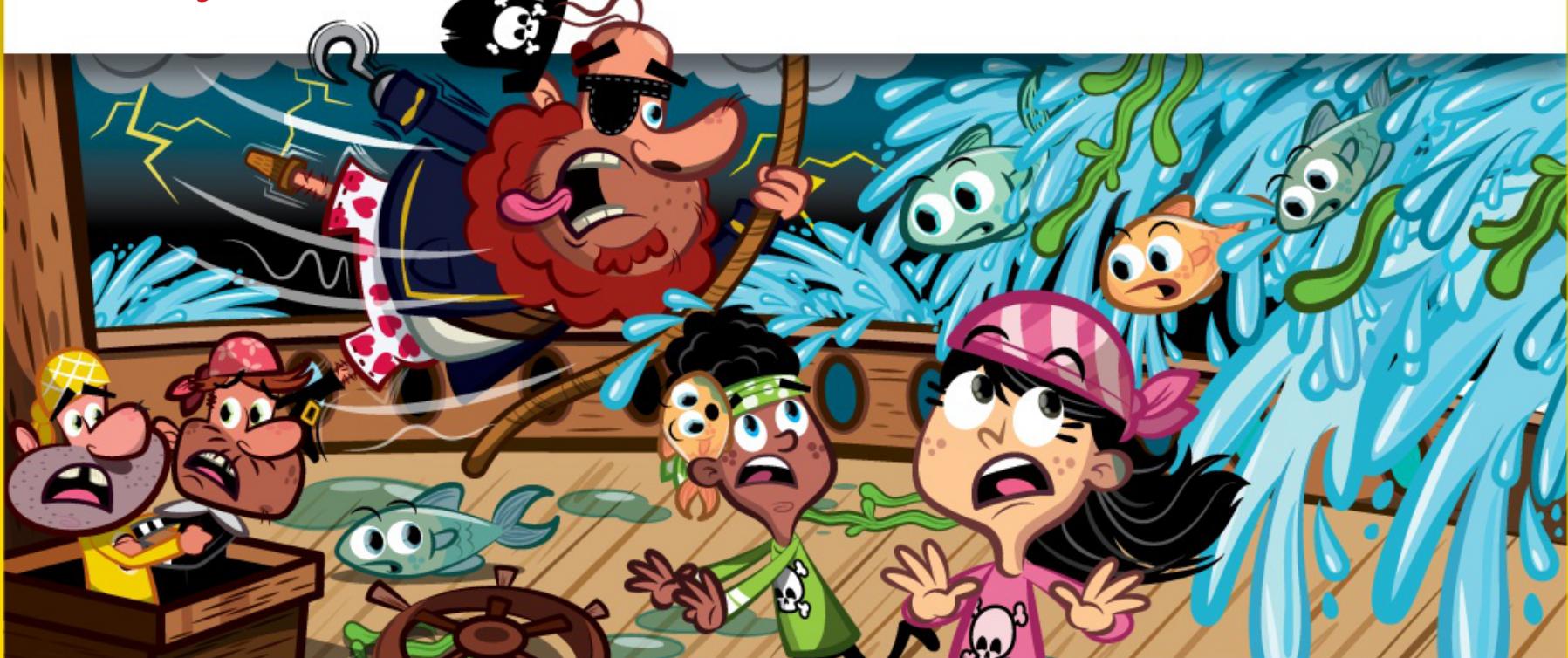
Ask a friend to give you words to fill in the blanks in this story without showing it to him or her. Then read out loud for a laugh.

BY BIANCA BOWMAN

PLAY MORE FUNNY FILL-IN!  
[natgeokids.com/ffi](http://natgeokids.com/ffi)



\_\_\_\_\_ and I set sail on the famous pirate ship the \_\_\_\_\_ for our  
**friend's name** **adjective** **animal**  
summer vacation. After \_\_\_\_\_ out to sea, Captain \_\_\_\_\_ beard gave us a tour.  
**verb ending in -ing** **color**  
Suddenly the sky turned dark and it started to \_\_\_\_\_. A bolt of \_\_\_\_\_ streaked across  
**verb** **noun**  
the sky as a large wave filled with \_\_\_\_\_ crashed over the side of the ship. Fish were flying everywhere—one  
**noun, plural**  
even landed on my \_\_\_\_\_. The first mate, \_\_\_\_\_, took cover with \_\_\_\_\_.  
**body part** **celebrity** **historical figure**  
The captain was taking down the sail when a(n) \_\_\_\_\_ gust of wind sent him flying through the air. He held on to  
**adjective**  
the \_\_\_\_\_ but his trousers flew off the ship, showing \_\_\_\_\_.  
**noun** **color** **noun**  
underpants! After he landed back on the deck, we all went below until the storm ended. But we didn't find the captain's pants  
until \_\_\_\_\_ days later—when we spotted them on a(n) \_\_\_\_\_'s fin.  
**large number** **ocean animal**



JASON THARP

# Whatcha Think?

Check out how *Nat Geo Kids* readers responded to this poll, then go online to vote in the next one!  
[natgeokids.com/whatchathink](http://natgeokids.com/whatchathink)



19%  
MILKSHAKE



17%  
SHAVED ICE

What's  
your  
favorite  
summer  
snack?



5%  
FROZEN  
FRUIT



36%  
ICE-CREAM  
CONE



11%  
FRUITY  
ICE POP



12%  
ROOT-BEER  
FLOAT

# EXPLORER ACADEMY

In the new book *Explorer Academy: The Star Dunes*, 13-year-old Cruz Coronado breaks secret codes in order to fight dangerous villains and solve mysteries. Test your own skills by cracking the code on this page, then check out more about the book at [ExplorerAcademy.com](http://ExplorerAcademy.com).

TEXT AND PUZZLE BY GARETH MOORE

## THE CODE: FLAG CODE

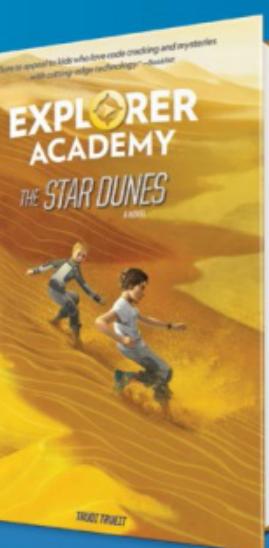
Secret messages can be hidden in real-life objects, including flags. Here, each flag represents the first letter of the country the flag belongs to. For example, the French flag would represent the letter *f*, and the Argentine flag would represent the letter *a*. Take a look at these flags from different countries below.



## CRACK THIS CODE!

Using the first letter of each flag's nation, decode the words below.

ANSWER ON PAGE 33



CHECK OUT THE BOOK!

BREAK MORE CODES!  
[ExplorerAcademy.com](http://ExplorerAcademy.com)

# BACK TALK

1. **Fill in** the thought balloon.
2. **Cut out** the entire picture (or make a photocopy of it).
3. **Mail** it along with your name, address, phone number, and date of birth to **Nat Geo Kids, Back Talk, P.O. Box 96000, Washington, DC 20090-6000**. Selection for publication in a future issue will be at the discretion of *Nat Geo Kids*.



## FROM THE NOVEMBER 2019 ISSUE

**Do you think I look cool?**

Sebastian A., 10  
Bellevue, Washington

**If I stand perfectly still, they won't see me.**

Allie P., 10  
Covington, Louisiana

**I'll dance for seals.**

Wyatt T., 6  
Ottawa, Kansas

**Ice is nice!**

Eli O., 8  
Matthews, North Carolina

**I'm gonna melt the ice with these hot moves.**

Maddox V., 10  
Crozet, Virginia

**I'm ice-zilla!**

Nicholas P., 8  
Hastings-on-Hudson,  
New York

**I would go surfing, but the water is so cold I can't bear it!**

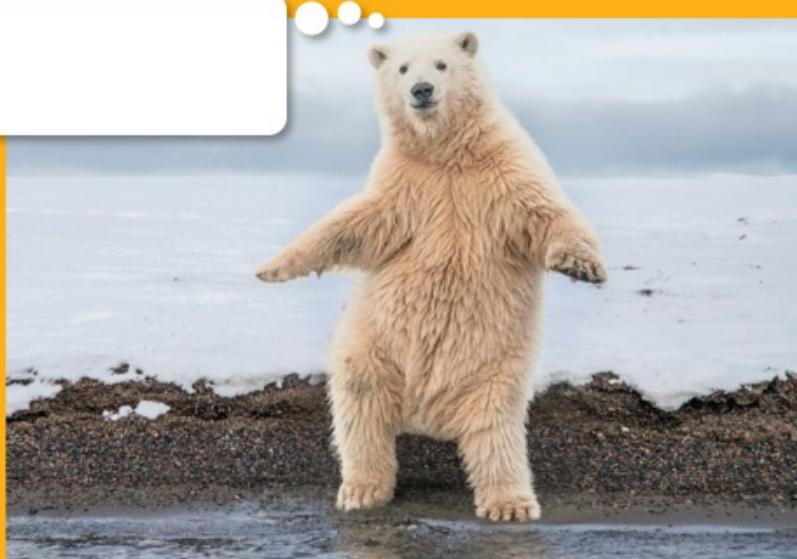
Evelyn J., 11  
Sunbury, Pennsylvania

**Hula dancing to raise money to fight climate change!**

Jane W., 12  
Bozeman, Montana

the dark  
(page 32): Messages in  
“Explorer Academy”

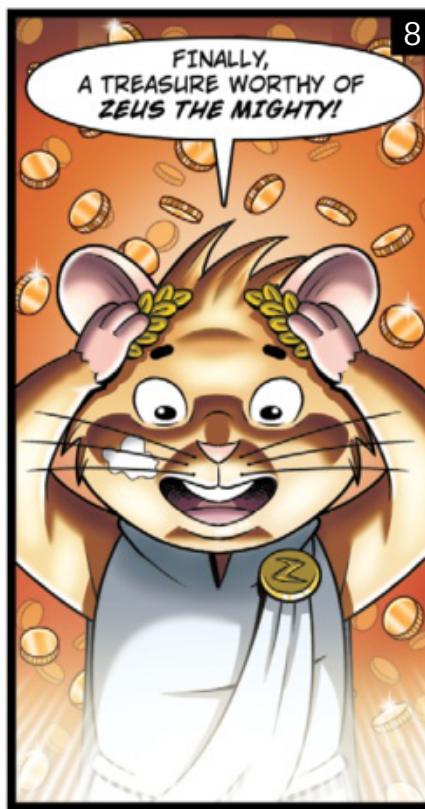
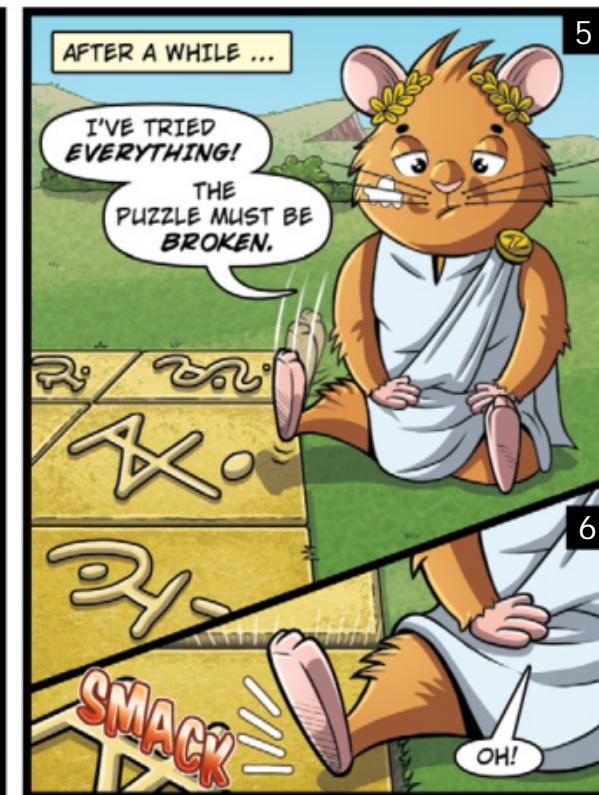
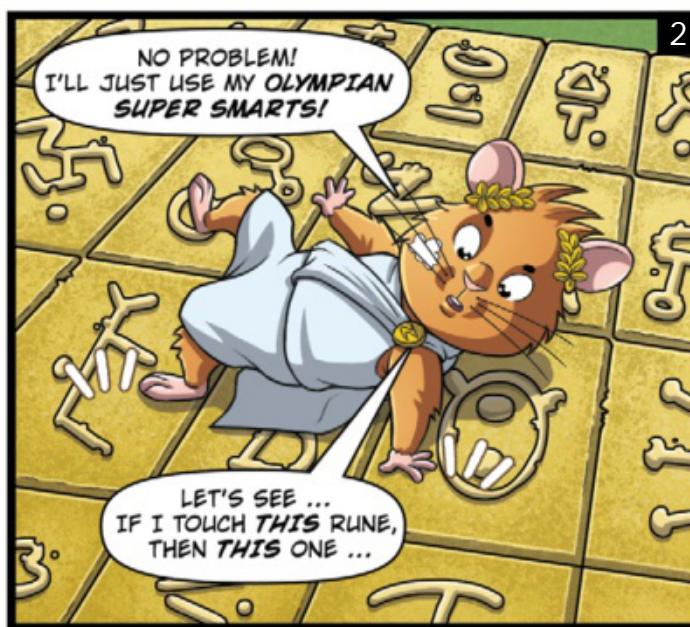
**ANSWERS**



# ZEUS

## THE MIGHTY

Zeus the hamster lives with his friends at a pet rescue center. But he thinks he's a Greek god! Check out what happens when his two worlds collide, then go online to learn more about the book *Zeus the Mighty: The Maze of the Menacing Minotaur*. [ZeusTheMighty.com](http://ZeusTheMighty.com)



CHECK OUT THE BOOK!

I'M JUST  
THINKIN'  
ABOUT  
'ROO!'

# CRTTER CHAT

If animals used social media,  
what would they say? Follow this  
eastern gray kangaroo's day as it  
updates its feed. BY ALLYSON SHAW

## Eastern Gray Kangaroo

LIVES IN: Eastern Australia  
SCREEN NAME: HopAlong  
FRIENDS: 



PLATYPUS



DuckBeaver

COASTAL PEACOCK SPIDER



SparkleSpider

COMMON BLUE-TONGUED SKINK



TongueSurprise

START

7 a.m.



HopAlong

Has anybody seen my joey? I just let him out of the pouch for the first time, and he's already hopped off on an adventure.



SparkleSpider

I remember when that little 'roo was the size of a cherry!  That was when my lima-bean-size babies were still in their eggs. (Oh, y'all forgot I'm the only mammal that lays eggs?!)



DuckBeaver

Oh yeah, I saw your joey not too long ago. He spooked me so much that I flashed my bright-blue tongue at him to scare him off. #SorryNotSorry



TongueSurprise



HopAlong

Thanks, everybody! He's back in the pouch—and he's grounded.



3 p.m.



HopAlong

Woot—29 feet! My best long jump ever! #GoldMedalForMe



OK, but I'd lap you in a swimming contest. Meet me in the lagoon anytime, any day.



DuckBeaver



That's nothing. Watch me shimmy-shake to impress a special lady spider.



SparkleSpider

That's one delicious-looking dance. 😊



TongueSurprise

4:55 p.m.



HopAlong

It's FINALLY cooling off. Time to feast on grass with my mob!



DuckBeaver

That sounds like too many party animals—I like to splash solo.



TongueSurprise

Bedtime for me. And since I just lost my tail to a falcon, I need my beauty sleep to start growing it back. TTYL!



SparkleSpider

Now that the lizard's snoozing, I can get in one last hunt without worrying. Look out, crickets!

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